

# TA-F830ES

## SERVICE MANUAL

Germany Model



### SPECIFICATIONS

Daten	Meßbedingungen	Meßwerte
Sinus-Dauerleistung (beide Kanäle gleichzeitig angesteuert)	4 Ohm, 20 Hz – 20 kHz Klirrgrad 0,008%	180 W + 180 W (DIN: 210 W + 210 W)
	6 Ohm, 20 Hz – 20 kHz Klirrgrad 0,006%	150 W + 150 W (DIN: 170 W + 170 W)
	8 Ohm, 20 Hz – 20 kHz Klirrgrad 0,004%	120 W + 120 W (DIN: 145 W + 145 W)
Leistungsbandbreite (IHF)	4 Ohm, THD 0,04%	10 Hz – 100 kHz bei 90 W
	8 Ohm, THD 0,04%	10 Hz – 100 kHz bei 60 W
Dynamik-Kopfraum (*78 IHF)	4 Ohm	2 dB
	8 Ohm	1,2 dB
Gesamtklirrgrad	8 Ohm, bei 10 W Ausgangsleistung	0,002%
Intermodulationsverzerrung (IM) 60 Hz: 7 kHz = 4: 1	4 Ohm, bei Nennausgangsleistung	0,008%
	6 Ohm, bei Nennausgangsleistung	0,006%
	8 Ohm, bei Nennausgangsleistung	0,004%
Dämpfungsfaktor	8 Ohm, 1 kHz	100
Eigenrauschen	Netzwerk A	unter 115 µV

Daten	Meßbedingungen		Meßwerte
Frequenzgang	PHONO MM		RIAA- Entzerrungskurve ±0,2 dB
	TUNER, CD, TAPE 1, 2, 3, DIRECT IN		2 Hz – 200 kHz +0 -3 dB
Eingangsempfindlichkeit	PHONO	MC 3 Ohm	0,17 mV, 33 Ohm
		40 Ohm	0,17 mV, 100 Ohm
	MM		2,5 mV, 50 kOhm
	TUNER, CD, DIRECT IN, TAPE 1, 2, 3, ADAPTOR IN		150 mV, 50 kOhm
S/R (Netzwerk) * 78 (IHF)	PHONO	MC	78 dB*, 70 dB (A)
		MM	80 dB*, 87 dB (A)
	TUNER, CD, DIRECT IN, TAPE 1, 2, 3, ADAPTOR IN		84 dB*, 105 dB (A)

— continued on next page —

INTEGRATED STEREO AMPLIFIER  
**SONY**®

Daten	Meßbedingungen	Meßwerte
Ausgangsimpedanz	REC OUT 1, 2, 3, ADAPTOR OUT	150 mV, 1 kOhm
	PRE OUT	1,0 V, 100 Ohm
	HEADPHONES	25 mW (bei 8 Ohm) Für Kopfhörer niedriger oder hoher Impedanz
Klangregler	BASS (100 Hz)	+4 -5.5 dB (Übernahmefrequenz 200 Hz)
		+6 -7 dB (Übernahmefrequenz 400 Hz)
	TREBLE (10 kHz)	+7 -8 dB (Übernahmefrequenz 3 kHz)
		+4 -5 dB (Übernahmefrequenz 6 kHz)
SUBSONIC-Filter	—	Dämpfung 6 dB/ Oktave unter 15 Hz

### Allgemeine Daten

System Vorverstärkerteil: rauscharmer FET-Verstärker,  
SUBSONIC-Filter Entzerrerverstärker ohne Rückkopplung,  
passive Klangregler  
Leistungsverstärkerteil: reinkomplementäre  
Gegentaktstufe ohne Transformatoren und  
Kondensatoren

Stromversorgung 220 V Wechselspannung, 50/60 Hz  
Leistungsaufnahme 420 W



Zubehör-Steckdose 1 × geschaltet, max. 100 W

Abmessungen ca. 470 × 170 × 435 mm (B/H/T)  
einschl. vorspringender Teile und  
Bedienungselemente

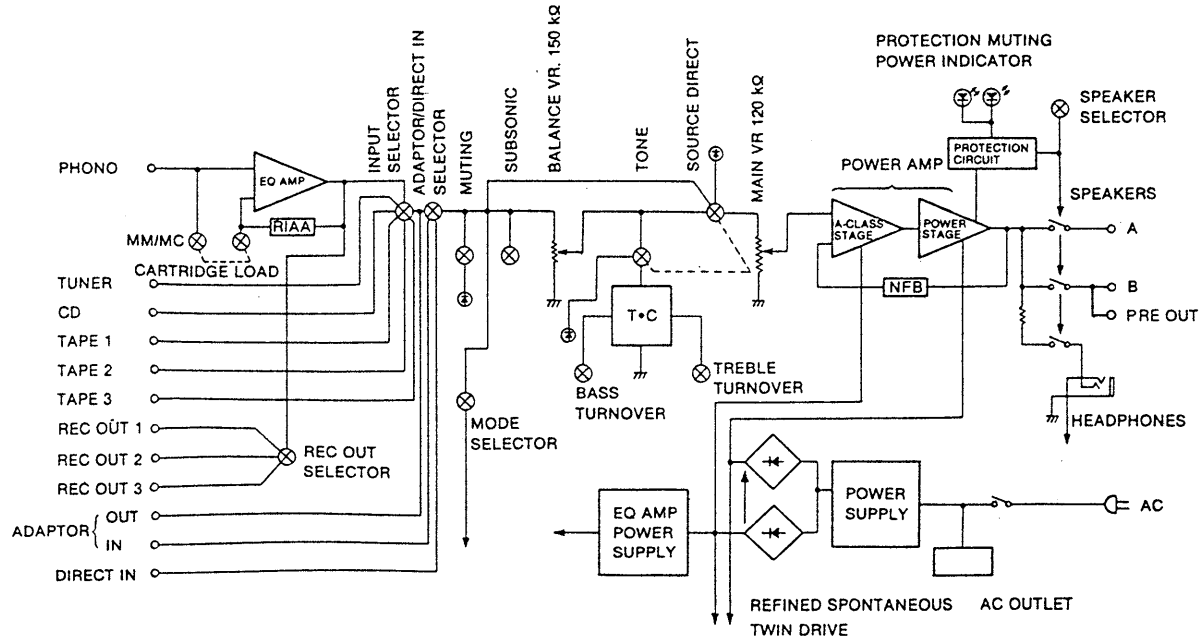
Gewicht ca. 24,5 kg netto  
Mitgeliefertes Zubehör Schrauben (8)

Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

### SAFETY-RELATED COMPONENT WARNING!!

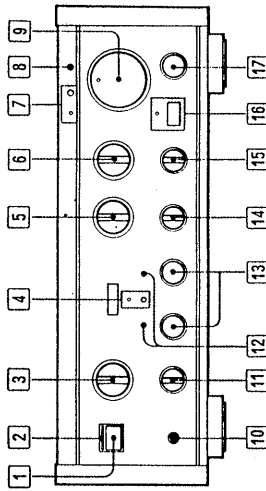
COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

### BLOCK DIAGRAM



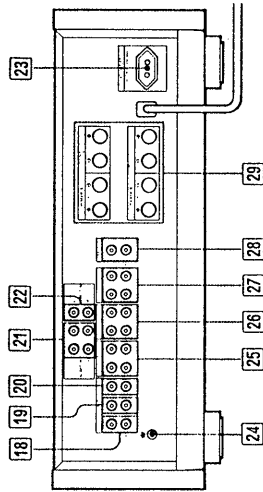
# SECTION 1 GENERAL

## Vorderseite



- 1 Netzschalter (POWER)**
- 2 Einschalt/Bereitschafts-Indikator**  
Während der kurzen Warphase unmittelbar nach dem Einschalten des Geräts leuchtet dieser Indikator rot. Sobald der Verstärker betriebsbereit ist, leuchtet der Indikator dann grün.  
Spricht die eingebaute Schutzschaltung infolge eines Kurzschlusses am Lautsprecherausgang oder an einem Eingang an, so leuchtet der Indikator rot.  
Ziehen Sie in diesem Fall den Netzstecker aus der Wandsteckdose, und überprüfen Sie die Anschlüsse der Komponenten und Lautsprecher.
- 3 Lautsprecherwähler (SPEAKERS)**  
Zur Wahl des Lautsprecherpaares A, B oder A + B.  
Zur Wahl des an den REC OUT-Ausgängen angeschlossenen Verstärkers oder der Aktivlautsprecher stellen Sie den Wähler auf B/PRE OUT.
- 4 Klangeinstellung (TONE) und Indikator**  
Ist dieser Schalter gedrückt, so leuchtet der rote Indikator, und der Klang kann mit den BASS- und TREBLE-Reglern beeinflusst werden.
- 5 Adapter/Direkt-Eingangsschalter (ADAPTER/DIRECT IN)**  
In der NORMAL-Position kann die Signalquelle mit dem INPUT SELECTOR-Wähler gewählt werden. Zur Wahl des Eingangssignals, das über das an den ADAPTER-Buchsen angeschlossene Zusatzgerät (z.B. Graphic-Equalizer) geleitet wird, stellen Sie den Wähler auf ADAPTER. Zur Wahl des an die DIRECT IN-Buchsen angeschlossenen Gerätes stellen Sie den Schalter auf DIRECT IN.  
**Hinweis**  
Die an den REC OUT-Ausgängen anliegenden Signale sind bei auf ADAPTER gestelltem Schalter nicht über das Zusatzgerät geleitet worden.  
Die an die DIRECT IN-Buchsen angeschlossene Signalquelle kann nicht über das Zusatzgerät geleitet und auch nicht an den REC OUT-Buchsen ausgegeben werden.
- 6 Eingangswähler (INPUT SELECTOR)**  
Zur Wahl der gewünschten Signalquelle.
- 7 Dämpfungsschalter (MUTING) und Indikator**  
Lassen Sie diesen Schalter normalerweise ausgerastet (auf OFF).  
Um die Lautstärke um 20 dB zu verringern, drücken Sie den Schalter (die Ausgangsspannung verringert sich auf 1/10).
- 8 SUBSONIC-Filter-Schalter**  
Bei gedrücktem Schalter werden unerwünschte Tieffrequenzen unter 15 Hz, die Intermodulationsverzerrungen verursachen, bedämpft.
- 9 Lautstärkeregler (ATTENUATOR)**  
Zur Einstellung der Lautstärke.
- 10 Kopfhörerbuchse (HEADPHONES) (Stereo-Klinkenbuchse)**
- 11 Betriebsartenwähler (MODE)**  
STEREO: Zur Wiedergabe einer Stereo-Signalquelle.  
MONO: Zur Wiedergabe einer Mono-Signalquelle.
- 12 Übergangsfrequenzwähler (TURNOVER)**  
Zur Wahl der Übergangsfrequenz.
- 13 Bass- und Höhenregler (BASS, TREBLE)**  
Die Bass- und Höhen-einstellung ist nur bei gedrücktem TONE-Schalter möglich.
- 14 Aufnahmeausgangswähler (REC OUT SELECTOR)**  
Zur Wahl der Signalquelle, die über die REC OUT-Ausgänge (an der Geräte-Rückseite) aufgenommen werden soll.
- 15 Tonabnehmer-Impedanzwähler (CARTRIDGE LOAD)**  
Stellen Sie diesen Wähler entsprechend des Plattenspieler-Tonabnehmer-Typs ein:  
MM: Bei einem Tonabnehmer mit Magnetsystem.  
MC: Bei einem dynamischen Tonabnehmer.  
40 Ω: Für Tonabnehmer mit einer Impedanz von 40 Ohm oder mehr.  
3 Ω: Für Tonabnehmer mit einer Impedanz von 3 bis 40 Ohm.

## Rückseite

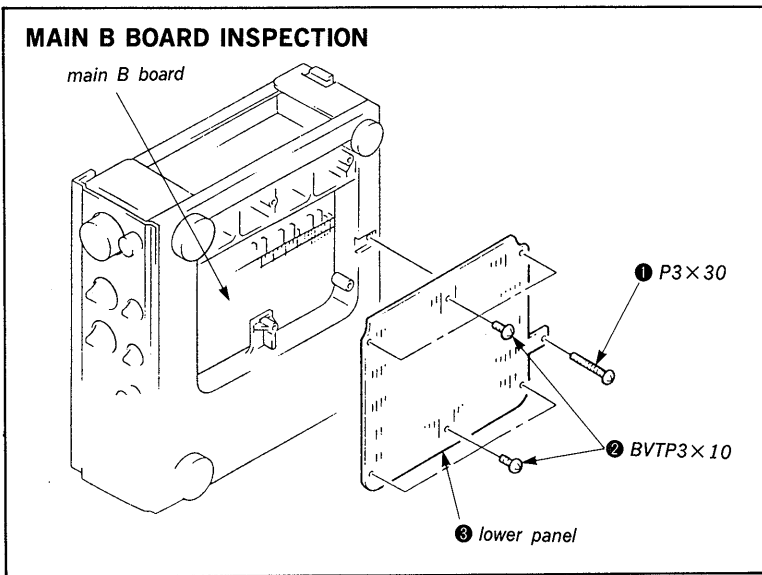


- Zum Anschluß siehe unter „Systemanschluß“ auf Seite 4.
- 18 Eingangssignal-Direktschalter (SOURCE DIRECT) und Indikator**  
Bei gedrücktem Schalter leuchtet der rote Indikator, und die Schaltkreise von TONE-Schalter, SUBSONIC-Filter-Schalter, BALANCE-Regler sowie MODE-Schalter werden übergangen.  
Der Indikator des TONE-Schalters leuchtet dann auch bei gedrücktem TONE-Schalter nicht.
  - 19 Balance-Regler (BALANCE)**  
Zur Einstellung der Balance zwischen linkem und rechtem Lautsprecher.
  - 20 PHONO-Eingänge**
  - 21 TUNER-Eingänge**
  - 22 CD-Eingänge**
  - 23 Adapter-Ein/Ausgänge (ADAPTOR IN/OUT)**  
Die mit dem INPUT SELECT-Wähler an der Vorderseite des Gerätes gewählten Signale liegen an den OUT-Buchsen an und werden über die IN-Buchsen zurückgeleitet.
  - 24 Direkteingänge (DIRECT IN)**  
**Hinweis**  
Die an die DIRECT IN-Buchsen angeschlossene Signalquelle wird nicht den REC OUT-Ausgängen zugeleitet und kann daher nicht aufgenommen werden.
  - 25 Zubehör-Steckdose (AC OUTLET)**  
Zur Stromversorgung von anderen Audio-Komponenten, deren Leistungsaufnahme 100 W nicht überschreitet.
  - 26 Erdungsanschluß (⏏)**  
Um Brummen zu vermeiden, schließen Sie den Erdungsdräht des Plattenspielers an diesen Anschluß an. Tritt danach immer noch Brummen auf, so verbinden Sie diesen Erdungsanschluß mit einem Erdungsstab direkt mit der Erde.
  - 27 Ein-Ausgänge für Tonband 1, 2, 3 (TAPE RECORDER 1, 2, 3)**  
Aufnahme-Ausgänge (REC OUT): Zum Anschließen an die Band-Eingänge des Cassettendecks.  
Wenn ein Hi-Fi-Videorecorder angeschlossen werden soll, verbinden Sie die Audio-Line-Eingänge des Videorecorders mit diesen Ausgängen.  
Band-Eingänge (TAPE): Zum Anschließen an die Aufnahme-Ausgänge des Cassettendecks.  
Zur Tonwiedergabe eines Hi-Fi-Videorecorders, eines Bildplattenspielers oder eines TV-Tuners verbinden Sie die Audio-Line-Ausgänge dieser Geräte mit diesen Eingängen.
  - 28 Vorverstärker-Ausgänge (PRE OUT)**  
Zum Anschluß eines Leistungsverstärkers oder Aktivlautspecher.
  - 29 Lautsprecheranschlüsse (SPEAKERS)**  
Zum Anschließen eines oder zweier Lautsprecherpaare. Am SPEAKERS-Wähler an der Vorderseite kann das gewünschte Lautsprecherpaar, A, B oder A + B, gewählt werden.
- Hinweis**  
Bei einigen Magnetsystem-Tonabnehmern (MM) ist die Signalmasse mit dem Tonabnehmergehäuse verbunden. Wird ein solcher Tonabnehmer in einen Tonabnehmerkopf aus Metall eingesteckt, so kommt es über den Tonarm zu einem Stromfluß, der Brummen verursachen kann. Trennen Sie in einem solchen Fall den Tonabnehmer-Erdschleifdraht vom I-Anschluß des Verstärkers oder die Verbindung von Tonabnehmergehäuse und Signalmasse ab.
- Signalmasse**  
Verbindung zum Tonabnehmergehäuse

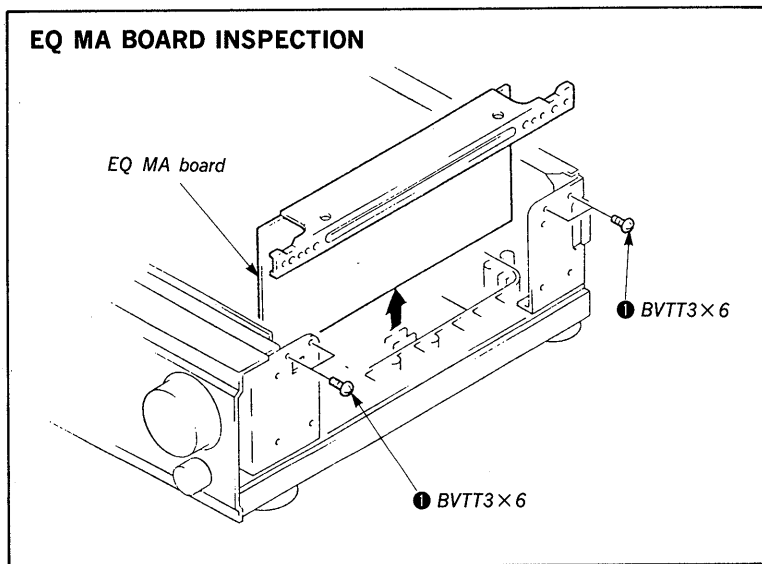
## SECTION 2 DISASSEMBLY

**NOTE:** Follow the disassembly procedure in the numerical order given.

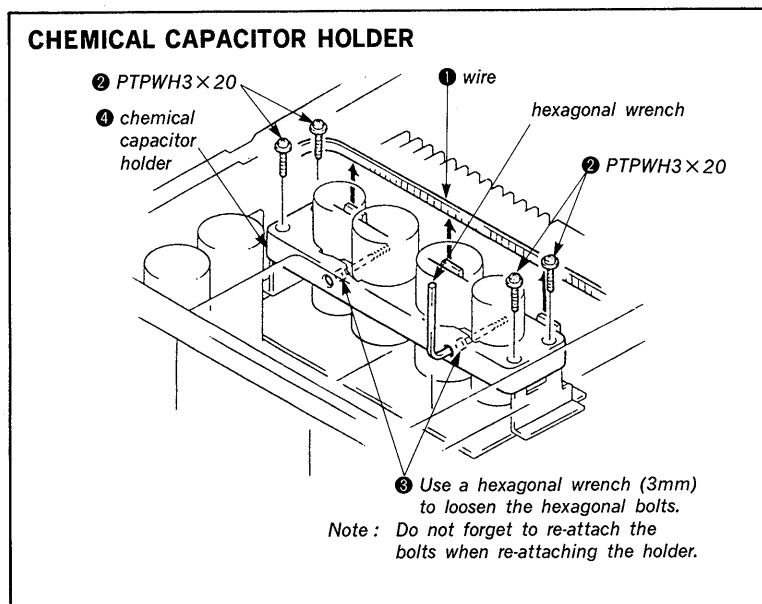
## MAIN B BOARD INSPECTION



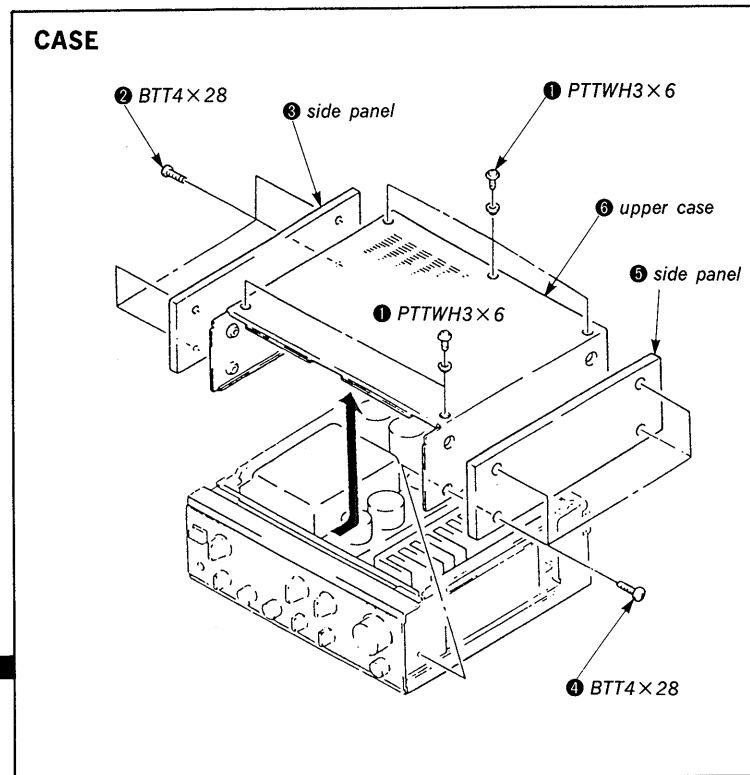
## EQ MA BOARD INSPECTION



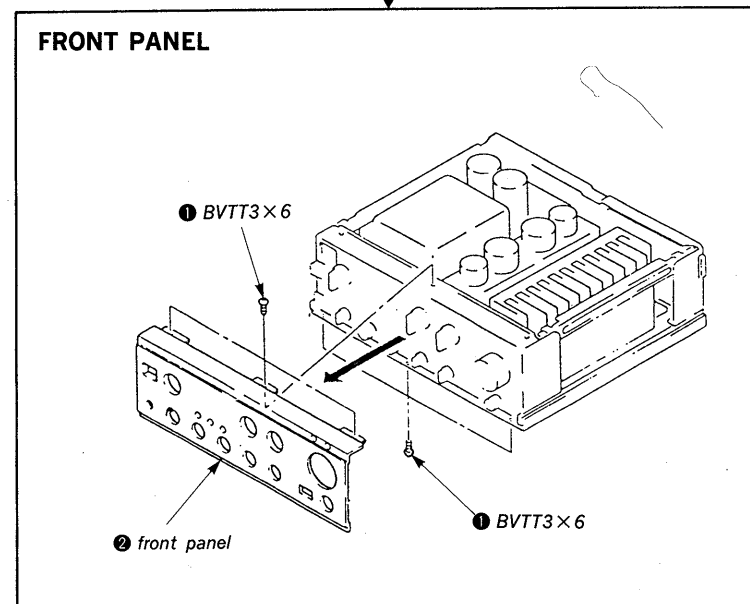
## CHEMICAL CAPACITOR HOLDER



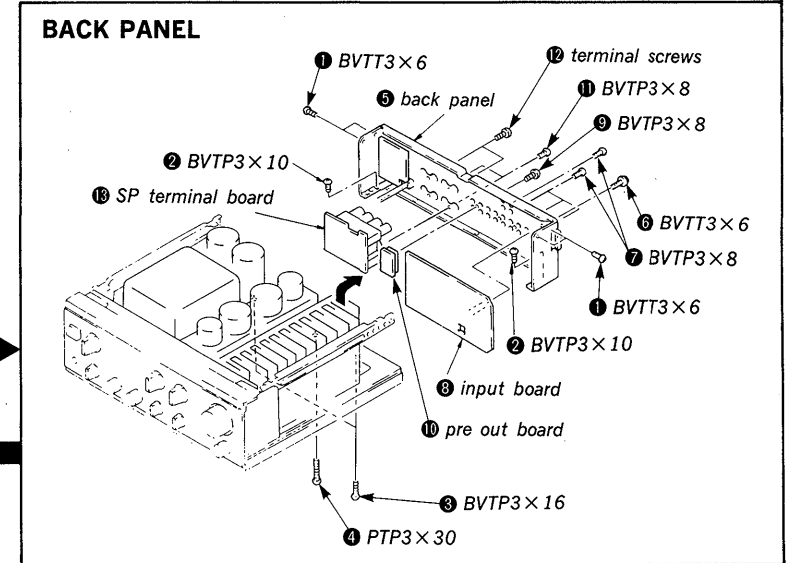
## CASE



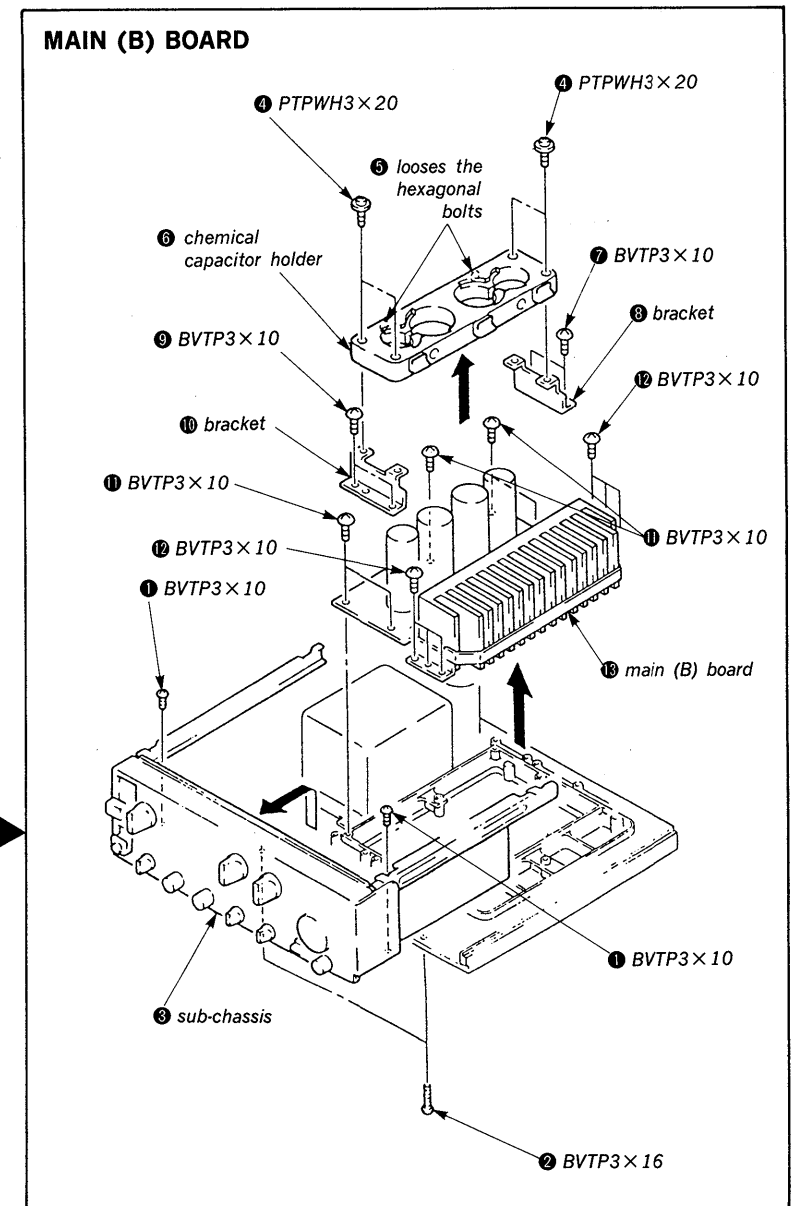
## FRONT PANEL



## BACK PANEL

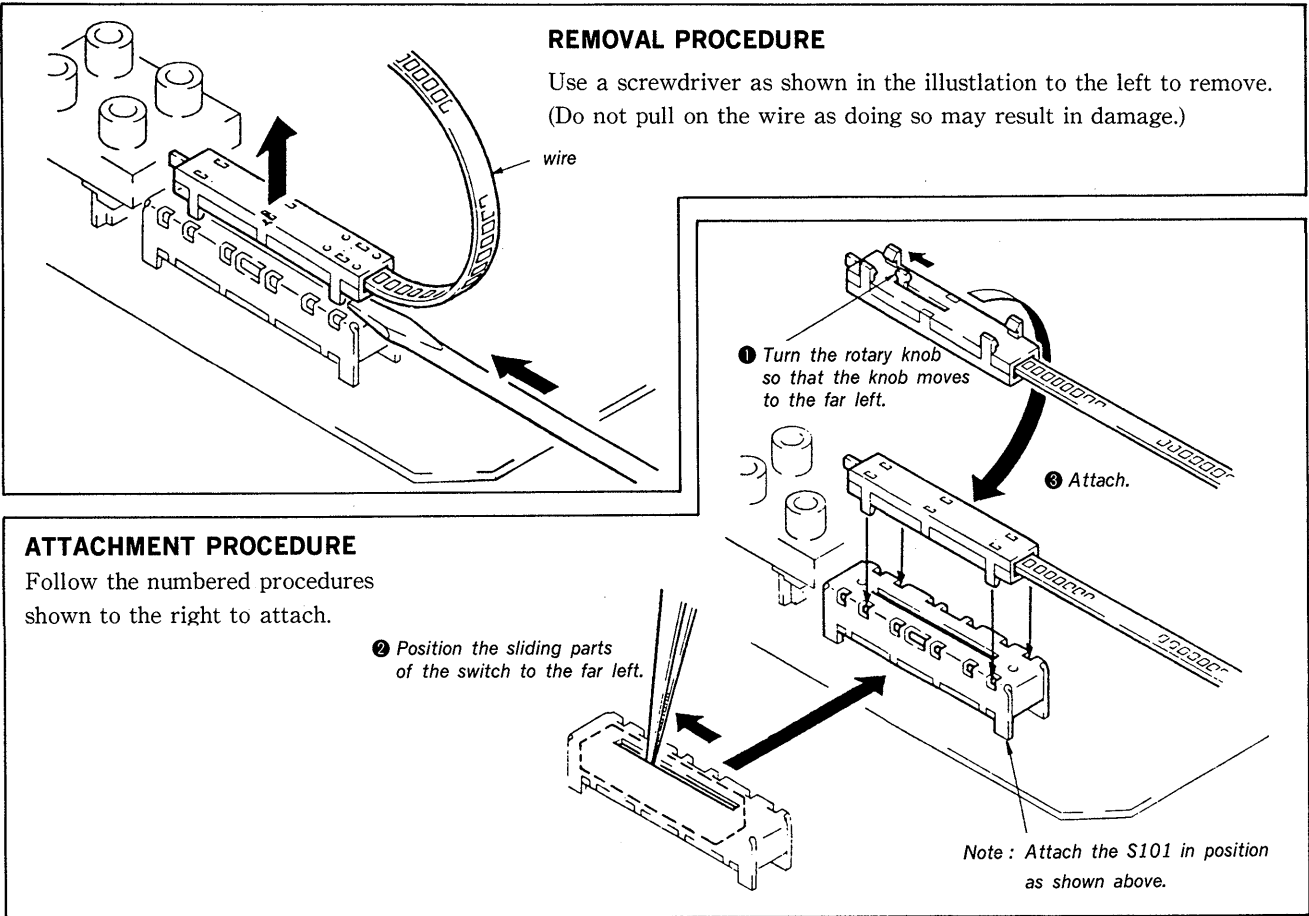


### MAIN (B) BOARD



### SECTION 3 REMOVAL SWITCH BLOCK

**Note:** Follow the disassembly procedure in the numerical order given.

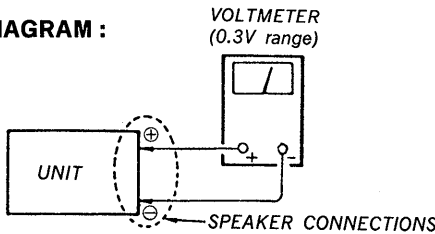


### SECTION 4 ELECTRICAL ADJUSTMENTS

#### OFFSET ADJUSTMENT

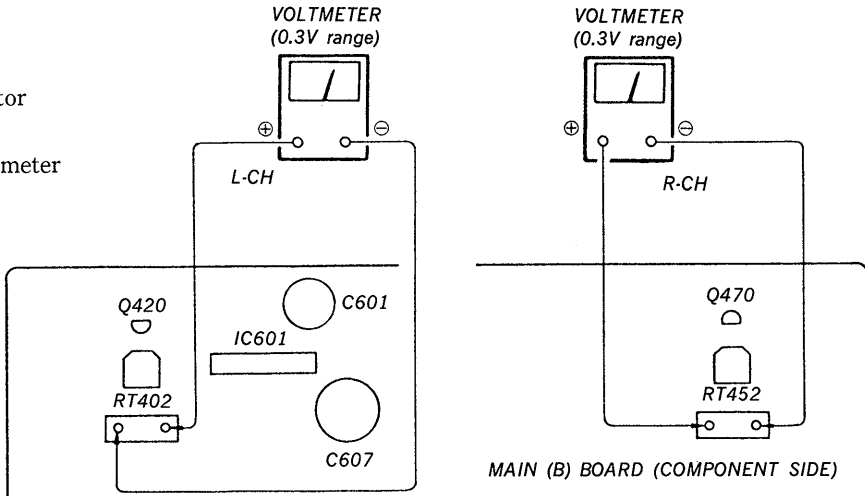
1. With no signal input, turn the attenuator counter-clockwise as far as possible.
2. Adjust RT401 and 451 on the main board so that the voltmeter reads 0V.

#### WIRING DIAGRAM :



#### BIAS ADJUSTMENT

1. With no signal input, turn the attenuator counter-clockwise as far as possible.
2. Adjustment RT402 and 452 so the voltmeter reads 15mV.



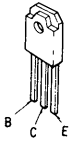
### SECTION 5 DIAGRAMS

#### 5-1. SEMICONDUCTOR LEAD LAYOUTS

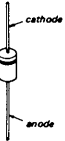
NE5534P



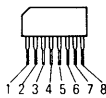
2SA1492  
2SC3856



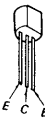
30DF2



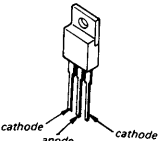
μPC1237HA



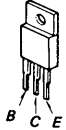
2SB716-D  
2SC1841-PA  
2SD756



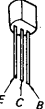
CTU-22R



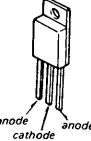
2SA985A-P  
2SA1383  
2SC2275  
2SC3514  
2SC3514-Q



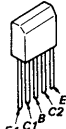
2SC945-P  
2SD756



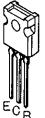
CTU-22S



2SA995F



2SC3423



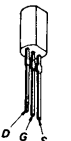
HZS6B1L  
HZS6C3L  
HZS9B2L



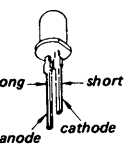
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2SD774-3



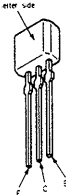
2SK147



SEL1810A



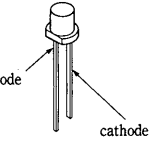
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2SC2785HFE



2SK246-GR2



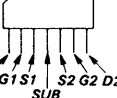
SEL2213C



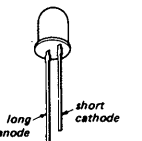
2SA1407D  
2SB731  
2SC3601



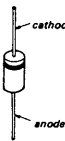
2SK389-GR



SEL2510C



10E2N  
HZ2CLL  
US1060M

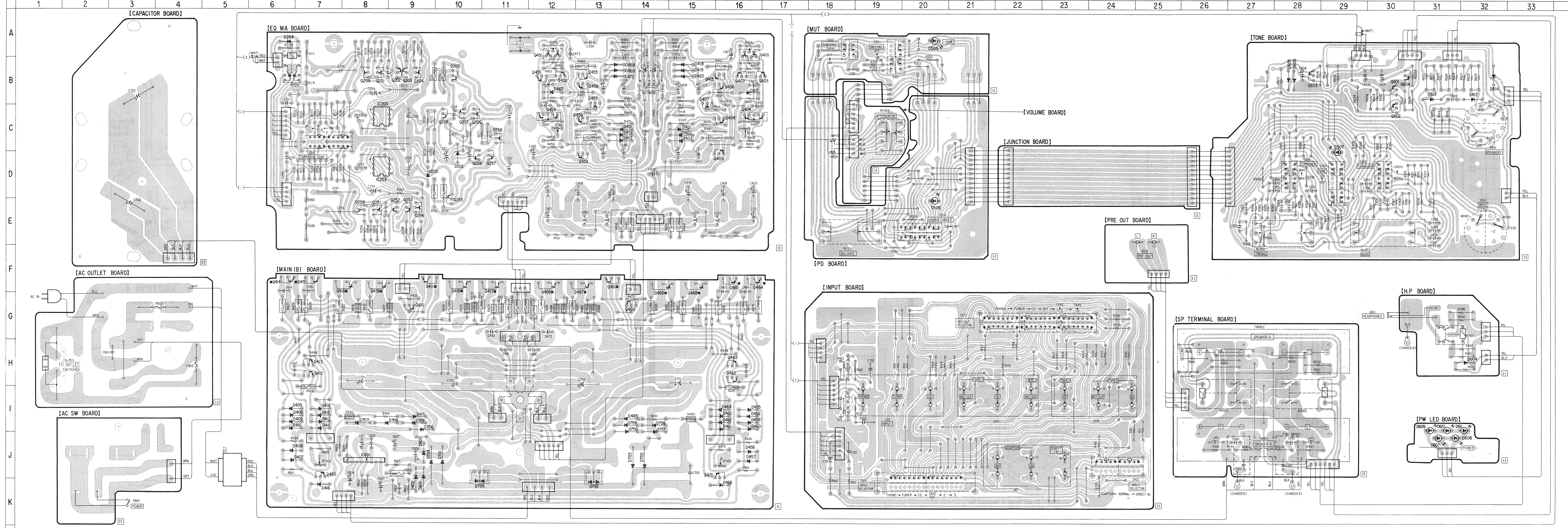




● Semiconductor Location					
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D202	D-10	D755	K-13	Q470	J-16
D203	D-9	D756	I-14	Q601	B-30
D204	A-6	D757	I-14	Q602	B-30
D401	C-15	D758	I-14	Q603	B-28
D402	C-15	D759	I-14	Q604	B-30
D403	C-15				
D405	I-6	IC203	C-8		
D406	I-6	IC253	D-8		
D407	J-6	IC601	J-8		
D408	J-6				
D409	I-6	Q201	B-8		
D410	I-6	Q202	B-9		
D411	I-7	Q203	B-9		
D412	I-6	Q204	B-9		
D413	I-6	Q205	B-10		
D414	I-6	Q206	C-10		
D415	I-9	Q207	C-10		
D416	K-7	Q208	C-10		
D417	B-16	Q209	B-8		
D418	B-15	Q251	E-8		
D419	B-15	Q252	E-9		
D420	B-15	Q253	E-9		
D451	C-14	Q254	E-9		
D452	C-14	Q255	D-10		
D453	C-14	Q256	C-11		
D455	I-16	Q257	D-11		
D456	I-16	Q258	D-10		
D457	I-16	Q259	E-8		
D458	J-16	Q401	A-16		
D459	I-16	Q402	B-16		
D460	I-16	Q403	B-17		
D461	I-16	Q404	C-16		
D462	I-16	Q405	B-16		
D463	I-16	Q406	B-16		
D464	I-16	Q407	C-15		
D465	I-14	Q408	C-16		
D466	K-16	Q409	C-16		
D467	B-12	Q410	G-9		
D468	B-14	Q411	F-9		
D469	B-14	Q412	H-7		
D470	B-14	Q413	H-7		
D505	A-20	Q414	F-6		
D506	E-20	Q415	F-7		
D507	C-29	Q416	F-10		
D601	J-9	Q417	F-11		
D602	J-9	Q418	F-8		
D603	J-9	Q419	F-8		
D604	H-32	Q420	J-7		
D605	B-28	Q451	A-12		
D606	B-28	Q452	B-12		
D607	J-31	Q453	B-12		
D608	J-31	Q454	C-12		
D609	I-31	Q455	B-13		
D610	I-31	Q456	B-13		
D611	I-32	Q457	C-13		
D612	B-32	Q458	C-13		
D613	B-31	Q459	D-13		
D614	B-32	Q460	G-14		
D701	J-10	Q461	F-13		
D702	J-14	Q462	H-16		
D703	J-14	Q463	H-16		
D704	J-9	Q464	F-16		
D705	K-10	Q465	F-16		
D706	I-9	Q466	F-12		
D707	I-8	Q467	F-13		
D708	I-8	Q468	F-15		
D709	I-9	Q469	F-14		

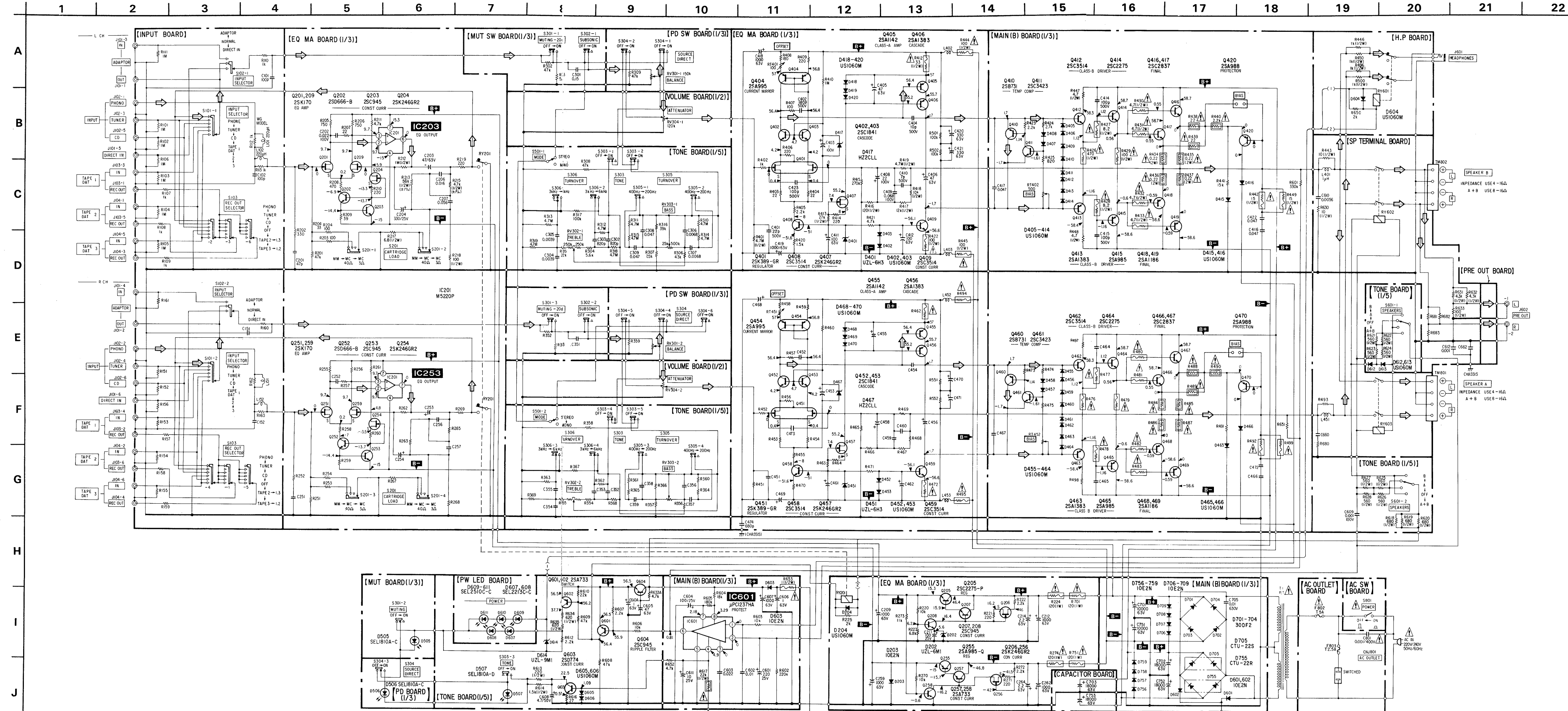
Note:  
○ : parts extracted from the component side.  
● : parts mounted on the conductor side.

5-2. PRINTED WIRING BOARDS • See page 7 for Semiconductor Lead Layouts.





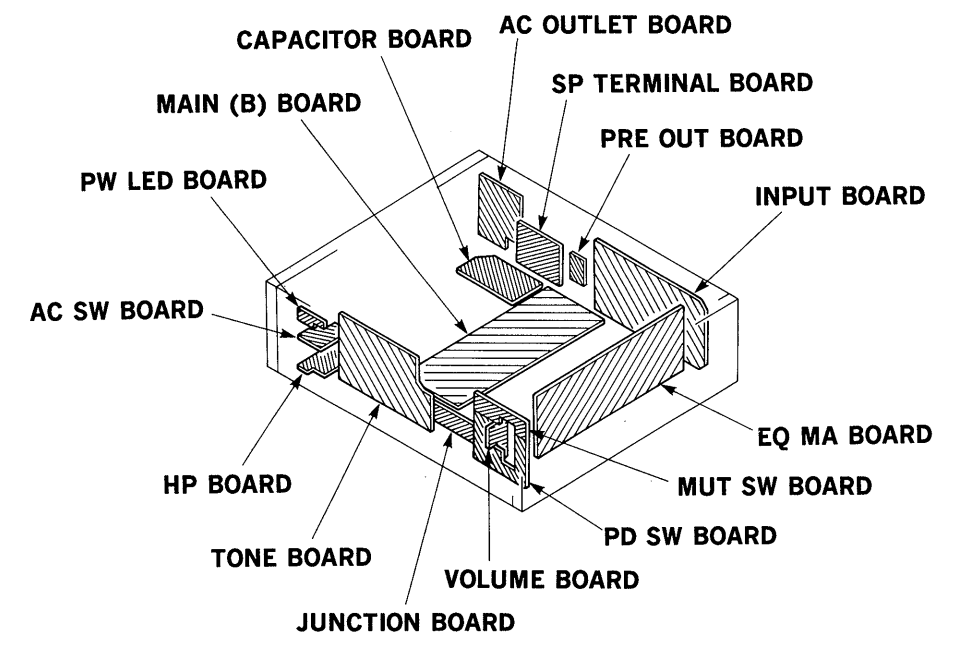
### 5-3. SCHEMATIC DIAGRAMS



- Note:**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in  $\Omega$  and  $\frac{1}{4}\text{W}$  or less unless otherwise specified.
  - % : indicates tolerance.
  - Components for right channel have same values as for left channel. Reference numbers are coded from 100-400 and 600.
  - : nonflammable resistor.
  - : fusible resistor.
  - : B+ Line
  - : B- Line
  - : adjustment for repair.
  - Voltage is dc with respect to ground under no-signal conditions.
  - Voltages are taken with a VOM (Input Impedance 10M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
  - Signal path.
  - : PHONO

**Note:** The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

### 5-4. CIRCUIT BOARDS LOCATION



## SECTION 6 EXPLODED VIEWS

### NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

- Color Indication of Appearance Parts  
Example:

(RED) ... KNOB, BALANCE (WHITE)



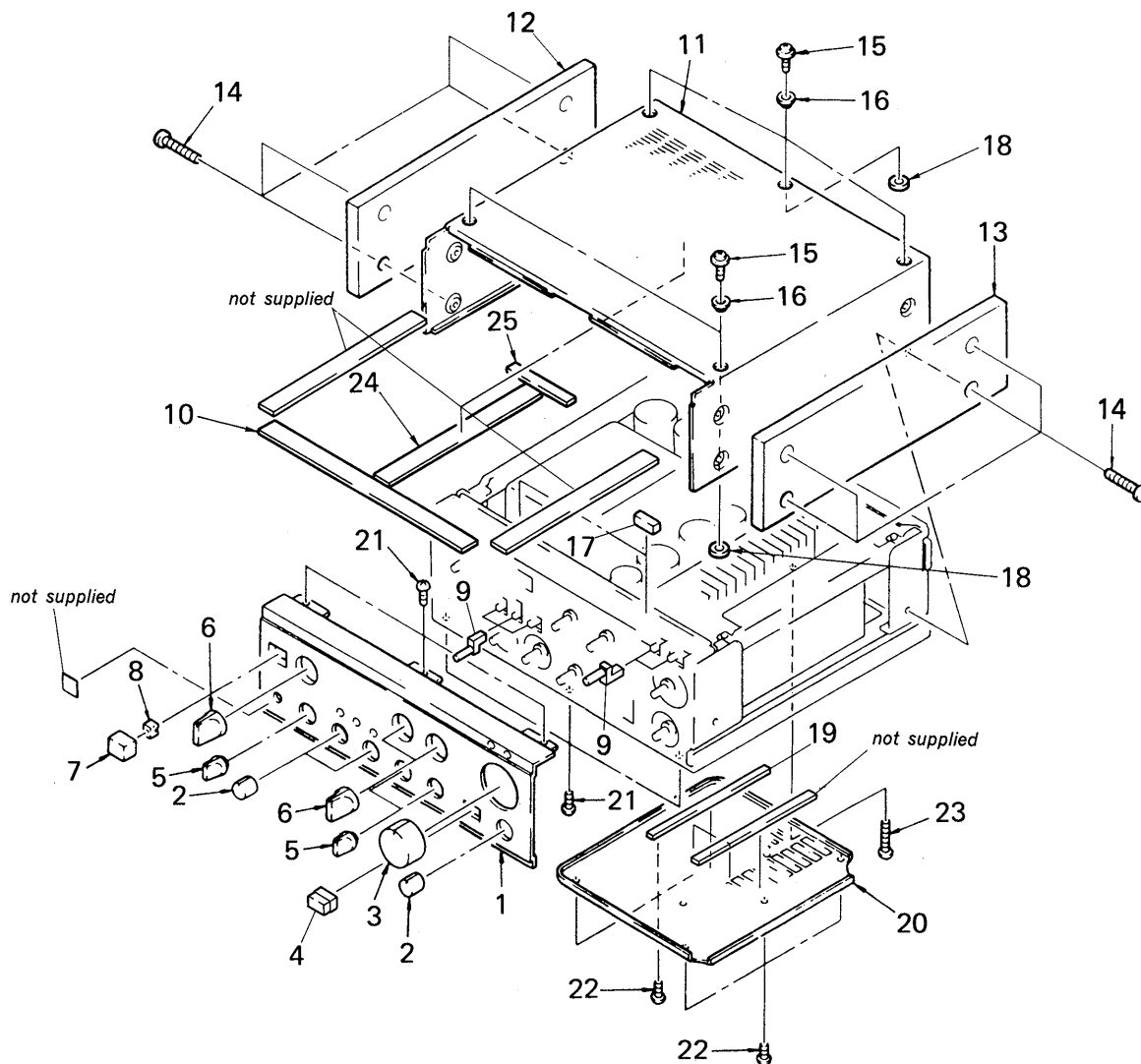
Cabinet's Color



Parts Color

The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

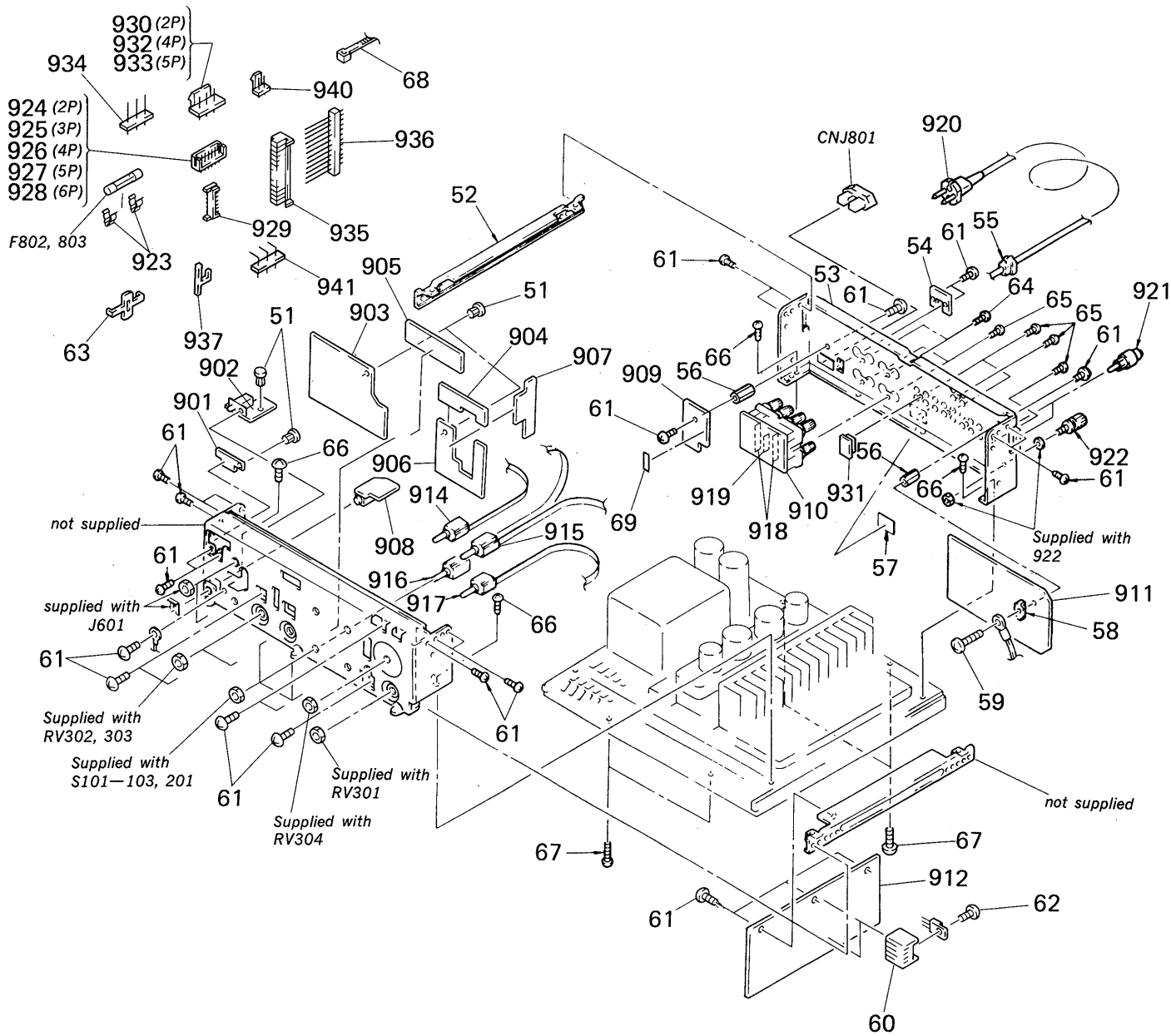
### 6-1. CASE ASSEMBLY



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	A-4317-917-A	PANEL ASSY, FRONT		13	X-4885-952-1	PANEL (RIGHT) ASSY, SIDE	
2	4-923-871-01	KNOB (ROUND-22)(BASS/TREBLE/BALANCE)		14	4-885-979-21	SCREW (4X28)	
3	4-923-870-01	KNOB (ROUND-55)(ATTENUATOR)		15	4-886-821-01	SCREW, S TIGHT, +PTTWH 3X6	
4	4-917-460-21	KNOB (SOURCE DIRECT)		16	3-576-298-11	ESCUTCHEON	
5	4-923-869-01	KNOB (FLAT-22)		17	*4-908-872-01	CUSHION	
6	4-923-868-01	(MODE/REC OUT SELECTOR/CARTRIDGE LOAD) KNOB (FLAT-32)(INPUT SELECTOR)		18	3-311-623-21	SPACER	
7	4-908-856-01	KNOB, SQUARE (POWER)		19	4-916-782-11	SHEET	
8	4-864-307-00	RING		20	*4-921-428-01	PLATE, BOTTOM	
9	4-923-879-01	BUTTON (DIA.4) (TURNOVER/TONE/MUTING/SUBSONIC)		21	7-682-547-09	SCREW +B 3X6	
10	*4-929-218-01	DAMPER		22	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT	
11	4-908-868-01	CASE		23	7-685-153-19	SCREW +P 3X30 TYPE2 SLIT	
12	X-4885-951-1	PANEL (LEFT) ASSY, SIDE		24	4-916-782-21	SHEET (A)	
				25	*4-916-761-01	SHEET, DAMPER	



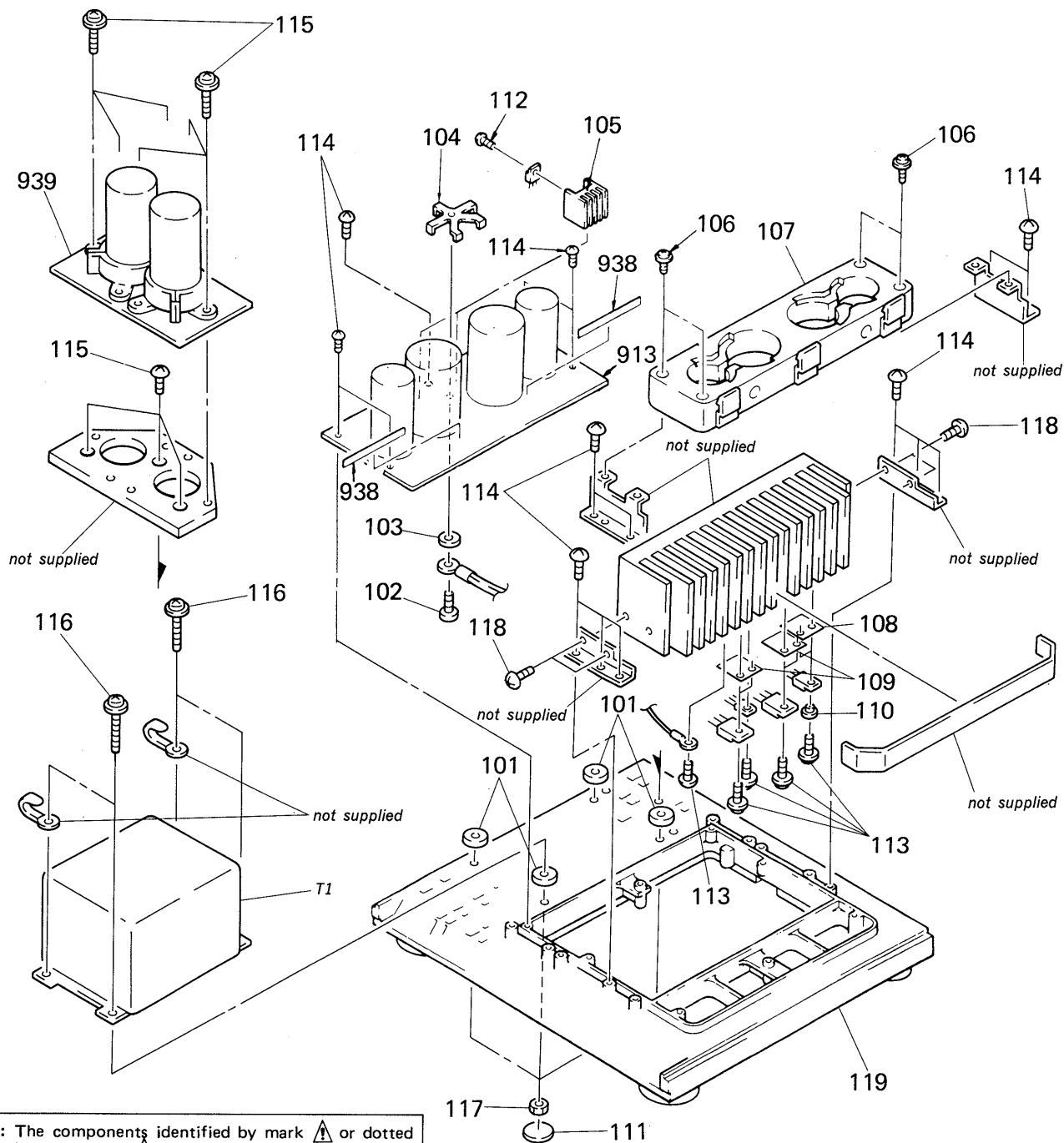
6-2. FRONT CHASSIS AND BACK PANEL ASSEMBLIES





No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	4-812-134-00	RIVET NYLON, 3.5		912	*A-4333-139-A	MOUNTED PCB, EQ MA	
52	*4-908-861-31	BRACKET, EQ		914	1-571-337-11	SWITCH, ROTARY SLIDE	
53	*4-923-842-61	PANEL, BACK		915	1-571-769-11	SWITCH, ROTARY SLIDE (REMOTE)	
54	*4-923-873-01	BRACKET, CORD STOPPER		916	1-571-770-11	SWITCH, ROTARY SLIDE (REMOTE)	
55	2-352-626-01	BUSHING, CORD		917	1-571-771-11	SWITCH, ROTARY SLIDE (REMOTE)	
56	*2-280-622-51	SUPPORT (M3), HEXAGON		918	*1-560-242-11	BUS BAR 3P	
57	*4-929-249-01	LABEL, MODEL NUMBER		919	*1-560-242-61	BUS BAR 2P	
58	*4-835-639-00	PLATE, GROUND		920	△ 1-559-271-11	CORD, POWER	
59	7-682-149-15	SCREW, TR		921	1-506-113-00	SHORT PLUG	
60	*4-921-402-01	HEAT SINK		922	1-535-691-11	TERMINAL	
61	7-682-547-09	SCREW +B 3X6		923	1-533-183-11	HOLDER, FUSE	
62	7-682-548-09	SCREW +B 3X8		924	*1-564-505-11	PLUG, CONNECTOR 2P	
63	*4-923-814-01	PLATE, CONNECTION		925	*1-564-506-11	PLUG, CONNECTOR 3P	
64	3-704-242-11	SCREW, TERMINAL, + BVTP CLAW		926	*1-564-507-11	PLUG, CONNECTOR 4P	
65	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		927	*1-564-508-11	PLUG, CONNECTOR 5P	
66	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT		928	*1-564-509-11	PLUG, CONNECTOR 6P	
67	7-685-650-79	SCREW +BVTP 3X16 TYPE2 SLIT		929	*1-564-521-11	PLUG, CONNECTOR 6P	
68	3-655-653-21	BAND (TAITON), BINDING		930	*1-564-321-00	PIN, CONNECTOR 2P	
69	3-701-947-18	LABEL (T5A), FUSE		931	*1-631-317-11	PC BOARD, PRE OUT	
901	*1-628-959-11	PC BOARD, PW LED		932	*1-564-241-00	PIN, CONNECTOR 4P	
902	*1-628-963-11	PC BOARD, AC SW		933	*1-564-242-00	PIN, CONNECTOR 5P	
903	*A-4410-872-A	MOUNTED PCB, TONE		934	*1-535-140-00	BASE POST 19MM (10MM PITCH) 3P	
904	*1-628-954-11	PC BOARD, MUT		935	*1-561-652-00	SOCKET, CONNECTOR 12P	
905	*1-628-957-11	PC BOARD, JUNCTION		936	*1-560-533-00	PIN, CONNECTOR 12P	
906	*1-628-955-11	PC BOARD, PD		937	1-535-476-11	TERMINAL	
907	*1-628-953-11	PC BOARD, VOLUME		940	1-564-320-00	PIN, CONNECTOR 2P	
908	*1-628-958-11	PC BOARD, HP		941	*1-560-595-21	TERMINAL (WITH BASE)	
909	*1-626-600-11	PC BOARD, AC OUTLET		CNJ801	△ 1-526-794-11	OUTLET, AC	
910	*1-628-956-11	PC BOARD, SP TERMINAL		F802	△ 1-532-299-00	FUSE, TIME-LAG (T5A)	
911	*1-628-951-11	PC BOARD, INPUT		F803	△ 1-532-286-00	FUSE, TIME-LAG (T2.5A)	

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

## 6-3. MAIN CHASSIS ASSEMBLY



**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
101	4-923-848-01	WASHER (B.S)		112	7-682-548-09	SCREW +B 3X8	
102	7-682-149-15	SCREW, TR		113	7-682-549-01	SCREW +B 3X10	
103	4-309-378-00	WASHER		114	7-685-647-79	SCREW +BVTP 3X10 TYPE2 SLIT	
104	*4-916-791-01	PLATE, GROUND, 5P		115	7-685-648-79	SCREW +BVTP 3X12 TYPE2 SLIT	
105	*4-921-402-01	HEAT SINK		116	7-682-669-09	SCREW +PSW 4X35	
106	4-921-437-01	SCREW (M3X20), TAPPING		117	7-684-024-04	N 4, TYPE 2	
107	*X-4885-928-3	HOLDER (A) ASSY		118	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
108	4-901-949-01	SHEET, INSULATING		119	X-4885-946-1	CHASSIS ASSY, MAIN	
109	4-908-847-01	SHEET, INSULATING		913	*A-4333-140-A	MOUNTED PCB, MAIN (B)	
110	2-371-561-00	BUSHING (P), INSULATING		938	*1-560-242-31	BUS BAR 5P	
111	*4-908-892-01	SPACER		939	*1-628-974-11	PC BOARD, CAPACITOR	
				T1	Δ.1-449-656-11	TRANSFORMER, POWER	



## SECTION 7 ELECTRICAL PARTS LIST

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

**CAPACITORS:**MF:  $\mu$ F, PF:  $\mu$ F.**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

**COILS**



- MMH: mH, UH:  $\mu$ H

**SEMICONDUCTORS**In each case, U:  $\mu$ , for example:UA....:  $\mu$ A...., UPA....:  $\mu$ PA....,UPC....:  $\mu$ PC, UPD....:  $\mu$ PD....

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description			
901	*1-628-959-11	PC BOARD, PW LED	C152	1-162-282-31	CERAMIC	100PF	5%	50V
902	*1-628-963-11	PC BOARD, AC SW	C201	1-107-163-00	MICA	47PF	5%	500V
903	*A-4410-872-A	MOUNTED PCB, TONE	C202	1-130-973-00	FILM	0.022MF	5%	100V
904	*1-628-954-11	PC BOARD, MUT	C203	1-124-918-11	ELECT	47MF	20%	63V
905	*1-628-957-11	PC BOARD, JUNCTION	C204	1-124-700-11	ELECT	330MF	20%	25V
906	*1-628-955-11	PC BOARD, PD	C206	1-136-304-11	FILM	0.016MF	2%	0
907	*1-628-953-11	PC BOARD, VOLUME	C207	1-136-305-11	FILM	0.056MF	2%	0
908	*1-628-958-11	PC BOARD, HP	C209	1-123-378-00	ELECT	1000MF	20%	63V
909	*1-626-600-11	PC BOARD, AC OUTLET	C211	1-123-333-00	ELECT	100MF	20%	25V
910	*1-628-956-11	PC BOARD, SP TERMINAL	C212	1-123-378-00	ELECT	1000MF	20%	63V
911	*1-628-951-11	PC BOARD, INPUT	C214	1-123-381-00	ELECT	2.2MF	20%	63V
912	*A-4333-139-A	MOUNTED PCB, EQ MA	C251	1-107-163-00	MICA	47PF	5%	500V
913	*A-4333-140-A	MOUNTED PCB, MAIN (B)	C252	1-130-973-00	FILM	0.022MF	5%	100V
914	1-571-337-11	SWITCH, ROTARY SLIDE	C253	1-124-918-11	ELECT	47MF	20%	63V
915	1-571-769-11	SWITCH, ROTARY SLIDE (REMOTE)	C254	1-124-700-11	ELECT	330MF	20%	25V
916	1-571-770-11	SWITCH, ROTARY SLIDE (REMOTE)	C256	1-136-304-11	FILM	0.016MF	2%	0
917	1-571-771-11	SWITCH, ROTARY SLIDE (REMOTE)	C257	1-136-305-11	FILM	0.056MF	2%	0
918	*1-560-242-11	BUS BAR 3P	C259	1-123-378-00	ELECT	1000MF	20%	63V
919	*1-560-242-61	BUS BAR 2P	C262	1-123-378-00	ELECT	1000MF	20%	63V
920	$\Delta$ 1-559-271-11	CORD, POWER	C264	1-123-381-00	ELECT	2.2MF	20%	63V
921	1-506-113-00	SHORT PLUG	C301	1-136-167-00	FILM	0.15MF	5%	50V
922	1-535-691-11	TERMINAL	C302	1-130-470-00	MYLAR	820PF	5%	50V
923	1-533-183-11	HOLDER, FUSE	C303	1-130-470-00	MYLAR	820PF	5%	50V
924	*1-564-505-11	PLUG, CONNECTOR 2P	C304	1-130-478-00	MYLAR	0.0039MF	5%	50V
925	*1-564-506-11	PLUG, CONNECTOR 3P	C305	1-130-478-00	MYLAR	0.0039MF	5%	50V
926	*1-564-507-11	PLUG, CONNECTOR 4P	C306	1-130-481-00	MYLAR	0.0068MF	5%	50V
927	*1-564-508-11	PLUG, CONNECTOR 5P	C307	1-130-481-00	MYLAR	0.0068MF	5%	50V
928	*1-564-509-11	PLUG, CONNECTOR 6P	C308	1-136-161-00	FILM	0.047MF	5%	50V
929	*1-564-521-11	PLUG, CONNECTOR 6P	C309	1-136-161-00	FILM	0.047MF	5%	50V
930	*1-564-321-00	PIN, CONNECTOR 2P	C351	1-136-167-00	FILM	0.15MF	5%	50V
931	*1-631-317-11	PC BOARD, PRE OUT	C352	1-130-470-00	MYLAR	820PF	5%	50V
932	*1-564-241-00	PIN, CONNECTOR 4P	C353	1-130-470-00	MYLAR	820PF	5%	50V
933	*1-564-242-00	PIN, CONNECTOR 5P	C354	1-130-478-00	MYLAR	0.0039MF	5%	50V
934	*1-535-140-00	BASE POST 19MM (10MM PITCH) 3P	C355	1-130-478-00	MYLAR	0.0039MF	5%	50V
935	*1-561-652-00	SOCKET, CONNECTOR 12P	C356	1-130-481-00	MYLAR	0.0068MF	5%	50V
936	*1-560-533-00	PIN, CONNECTOR 12P	C357	1-130-481-00	MYLAR	0.0068MF	5%	50V
937	1-535-476-11	TERMINAL	C358	1-136-161-00	FILM	0.047MF	5%	50V
938	*1-560-242-31	BUS BAR 5P	C359	1-136-161-00	FILM	0.047MF	5%	50V
939	*1-628-974-11	PC BOARD, CAPACITOR	C401	1-107-210-00	MICA	22PF	5%	500V
940	1-564-320-00	PIN, CONNECTOR 2P	C402	1-109-619-00	MICA	180PF	5%	500V
941	*1-560-595-21	TERMINAL (WITH BASE)	C403	1-123-380-00	ELECT	1MF	20%	100V
C101	1-162-282-31	CERAMIC	C404	1-107-202-00	MICA	10PF	0.5PF	500V
C102	1-162-282-31	CERAMIC	C405	1-124-918-11	ELECT	47MF	20%	63V
C151	1-162-282-31	CERAMIC	C406	1-124-918-11	ELECT	47MF	20%	63V
			C408	1-124-748-11	ELECT	22MF	20%	100V

Ref.No.	Part No.	Description							
C409	1-130-317-00	FILM	0.068MF	5%	100V				
C410	1-107-048-00	MICA	7PF	0.5PF	500V				
C411	1-124-130-00	ELECT	100MF	20%	63V				
C412	1-124-130-00	ELECT	100MF	20%	63V				
C414	1-107-169-00	MICA	100PF	5%	500V				
C415	1-107-169-00	MICA	100PF	5%	500V				
C416	1-136-161-00	FILM	0.047MF	5%	50V				
C417	1-136-161-00	FILM	0.047MF	5%	50V				
C418	1-123-378-00	ELECT	1000MF	20%	63V				
C419	1-123-378-00	ELECT	1000MF	20%	63V				
C420	1-123-376-00	ELECT	330MF	20%	63V				
C421	1-123-376-00	ELECT	330MF	20%	63V				
C422	1-136-161-00	FILM	0.047MF	5%	50V				
C423	1-107-169-00	MICA	100PF	5%	500V				
C451	1-107-210-00	MICA	22PF	5%	500V				
C452	1-109-619-00	MICA	180PF	5%	500V				
C453	1-123-380-00	ELECT	1MF	20%	100V				
C454	1-107-202-00	MICA	10PF	0.5PF	500V				
C455	1-124-918-11	ELECT	47MF	20%	63V				
C456	1-124-918-11	ELECT	47MF	20%	63V				
C458	1-124-748-11	ELECT	22MF	20%	100V				
C459	1-130-317-00	FILM	0.068MF	5%	100V				
C460	1-107-048-00	MICA	7PF	0.5PF	500V				
C461	1-124-130-00	ELECT	100MF	20%	63V				
C462	1-124-130-00	ELECT	100MF	20%	63V				
C464	1-107-169-00	MICA	100PF	5%	500V				
C465	1-107-169-00	MICA	100PF	5%	500V				
C466	1-136-161-00	FILM	0.047MF	5%	50V				
C467	1-136-161-00	FILM	0.047MF	5%	50V				
C468	1-123-378-00	ELECT	1000MF	20%	63V				
C469	1-123-378-00	ELECT	1000MF	20%	63V				
C470	1-123-376-00	ELECT	330MF	20%	63V				
C471	1-123-376-00	ELECT	330MF	20%	63V				
C472	1-136-161-00	FILM	0.047MF	5%	50V				
C473	1-107-169-00	MICA	100PF	5%	500V				
C474	1-130-469-00	MYLAR	680PF	5%	50V				
C601	1-123-334-00	ELECT	220MF	20%	25V				
C602	1-136-153-00	FILM	0.01MF	5%	50V				
C603	1-136-157-00	FILM	0.022MF	5%	50V				
C604	1-123-333-00	ELECT	100MF	20%	25V				
C605	1-124-918-11	ELECT	47MF	20%	63V				
C606	1-123-380-00	ELECT	1MF	20%	63V				
C607	1-123-378-00	ELECT	1000MF	20%	63V				
C608	1-123-369-00	ELECT	4.7MF	20%	50V				
C609	1-106-343-00	MYLAR	0.001MF	10%	100V				
C610A	1-130-480-00	MYLAR	0.0056MF	5%	50V				
C610	1-123-380-00	ELECT	1MF	20%	63V				
C611	1-123-356-00	ELECT	10MF	20%	25V				
C612	1-106-343-00	MYLAR	0.001MF	10%	100V				
C660	1-130-480-00	MYLAR	0.0056MF	5%	50V				
C662	1-106-343-00	MYLAR	0.001MF	10%	100V				
C701	1-125-502-11	CAP, ELECT	10000MF		63V				
C702	1-125-553-12	CAP, ELECT	18000MF		63V				
C703	1-125-550-11	ELECT	18000MF		63V				
C705	1-136-601-11	FILM	0.01MF	10%	630V				
C751	1-125-502-11	CAP, ELECT	10000MF		63V				
C752	1-125-553-12	CAP, ELECT	18000MF		63V				
C753	1-125-550-11	ELECT	18000MF		63V				
C801	1-161-741-00	CERAMIC	0.001MF	10%	400V				
CNJ801A	1-526-794-11	OUTLET, AC							
D202	8-719-933-36	ZENER DIODE HZS6B1L							
D203	8-719-200-77	DIODE 10E2N							
D204	8-719-000-26	DIODE US1060M							
D401	8-719-933-41	ZENER DIODE HZS6C3L							
D402	8-719-200-77	DIODE 10E2N							
D403	8-719-200-77	DIODE 10E2N							
D405	8-719-000-26	DIODE US1060M							
D406	8-719-000-26	DIODE US1060M							
D407	8-719-200-77	DIODE 10E2N							
D408	8-719-200-77	DIODE 10E2N							
D409	8-719-000-26	DIODE US1060M							
D410	8-719-000-26	DIODE US1060M							
D411	8-719-000-26	DIODE US1060M							
D412	8-719-000-26	DIODE US1060M							
D413	8-719-000-26	DIODE US1060M							
D414	8-719-000-26	DIODE US1060M							
D415	8-719-000-26	DIODE US1060M							
D416	8-719-000-26	DIODE US1060M							
D417	8-719-921-13	ZENER DIODE HZ2C1L							
D418	8-719-000-26	DIODE US1060M							
D419	8-719-000-26	DIODE US1060M							
D420	8-719-000-26	DIODE US1060M							
D451	8-719-933-41	ZENER DIODE HZS6C3L							
D452	8-719-200-77	DIODE 10E2N							
D453	8-719-200-77	DIODE 10E2N							
D455	8-719-000-26	DIODE US1060M							
D456	8-719-000-26	DIODE US1060M							
D457	8-719-200-77	DIODE 10E2N							
D458	8-719-200-77	DIODE 10E2N							
D459	8-719-000-26	DIODE US1060M							
D460	8-719-000-26	DIODE US1060M							
D461	8-719-000-26	DIODE US1060M							
D462	8-719-000-26	DIODE US1060M							
D463	8-719-000-26	DIODE US1060M							
D464	8-719-000-26	DIODE US1060M							
D465	8-719-000-26	DIODE US1060M							
D466	8-719-000-26	DIODE US1060M							
D467	8-719-921-13	ZENER DIODE HZ2C1L							
D468	8-719-000-26	DIODE US1060M							
D469	8-719-000-26	DIODE US1060M							
D470	8-719-000-26	DIODE US1060M							
D505	8-719-302-07	LED SEL1810A (MUTE)							
D506	8-719-302-07	LED SEL1810A (SOURCE DIRECT)							
D507	8-719-302-07	LED SEL1810A (TONE)							
D601	8-719-200-77	DIODE 10E2N							
D602	8-719-200-77	DIODE 10E2N							
D603	8-719-200-77	DIODE 10E2N							
D604	8-719-000-26	DIODE US1060M							
D605	8-719-000-26	DIODE US1060M							
D606	8-719-000-26	DIODE US1060M							
D607	8-719-300-82	LED SEL2213C (POWER (RED))							
D608	8-719-300-82	LED SEL2213C (POWER (RED))							
D609	8-719-303-00	LED SEL2510C (POWER (GREEN))							
D610	8-719-303-00	LED SEL2510C (POWER (GREEN))							

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description
D611	8-719-303-00	LED SEL2510C (POWER (GREEN))
D612	8-719-000-26	DIODE U51060M
D613	8-719-000-26	DIODE U51060M
D614	8-719-933-57	ZENER DIODE HZS982L
D701	8-719-230-02	DIODE 30DF2
D702	8-719-230-02	DIODE 30DF2
D703	8-719-230-02	DIODE 30DF2
D704	8-719-230-02	DIODE 30DF2
D705	8-719-300-27	DIODE CTU-22S
D706	8-719-200-77	DIODE 10E2N
D707	8-719-200-77	DIODE 10E2N
D708	8-719-200-77	DIODE 10E2N
D709	8-719-200-77	DIODE 10E2N
D755	8-719-300-25	DIODE CTU-22R
D756	8-719-200-77	DIODE 10E2N
D757	8-719-200-77	DIODE 10E2N
D758	8-719-200-77	DIODE 10E2N
D759	8-719-200-77	DIODE 10E2N
F802	A-1-532-299-00	FUSE, TIME-LAG (T5A)
F803	A-1-532-286-00	FUSE, TIME-LAG (T2.5A)
IC203	8-759-905-42	IC NE5534P
IC253	8-759-905-42	IC NE5534P
IC601	8-759-111-68	IC UPC1237HA
J101	1-507-831-00	JACK, PIN 6P
J102	1-507-831-31	JACK, PIN 6P (INPUT)
J103	1-507-831-00	JACK, PIN 6P
J104	1-507-831-00	JACK, PIN 6P
J601	1-507-863-51	JACK, LARGE TYPE (HEADPHONES)
J602	1-507-852-00	JACK, PIN 2P (PRE OUT)
L101	1-413-101-00	COIL, INPUT
L102	1-413-101-00	COIL, INPUT
L151	1-413-101-00	COIL, INPUT
L152	1-413-101-00	COIL, INPUT
L401	*1-422-009-13	COIL, AIR-CORE
L402	1-422-261-11	COIL, AIR-CORE
L403	1-422-261-11	COIL, AIR-CORE
L451	*1-422-009-13	COIL, AIR-CORE
L452	1-422-261-11	COIL, AIR-CORE
L453	1-422-261-11	COIL, AIR-CORE
Q201	8-729-214-71	TRANSISTOR 2SK147
Q202	8-729-805-05	TRANSISTOR 2SC3601
Q203	8-729-119-78	TRANSISTOR 2SC2785HFE
Q204	8-729-201-56	TRANSISTOR 2SK246GR2
Q205	8-729-127-53	TRANSISTOR 2SC2275
Q206	8-729-201-56	TRANSISTOR 2SK246GR2
Q207	8-729-167-62	TRANSISTOR 2SC2676
Q208	8-729-375-61	TRANSISTOR 2SD756
Q209	8-729-214-71	TRANSISTOR 2SK147
Q251	8-729-214-71	TRANSISTOR 2SK147
Q252	8-729-805-05	TRANSISTOR 2SC3601
Q253	8-729-119-78	TRANSISTOR 2SC2785HFE
Q254	8-729-201-56	TRANSISTOR 2SK246GR2
Q255	8-729-190-53	TRANSISTOR 2SA985A-P
Q256	8-729-201-56	TRANSISTOR 2SK246GR2
Q257	8-729-113-82	TRANSISTOR 2SA1138
Q258	8-729-371-61	TRANSISTOR 2SB716-D
Q259	8-729-214-71	TRANSISTOR 2SK147
Q401	8-729-203-21	TRANSISTOR 2SK389-GR

Ref.No.	Part No.	Description
Q402	8-729-108-05	TRANSISTOR 2SA1841PA
Q403	8-729-108-05	TRANSISTOR 2SA1841PA
Q404	8-729-699-51	TRANSISTOR 2SA995F
Q405	8-729-802-71	TRANSISTOR 2SA1407-D
Q406	8-729-104-91	TRANSISTOR 2SA1383
Q407	8-729-201-56	TRANSISTOR 2SK246GR2
Q408	8-729-104-18	TRANSISTOR 2SC3514-Q
Q409	8-729-104-18	TRANSISTOR 2SC3514-Q
Q410	8-729-173-13	TRANSISTOR 2SB731
Q411	8-729-203-45	TRANSISTOR 2SC3423
Q412	8-729-104-18	TRANSISTOR 2SC3514-Q
Q413	8-729-104-91	TRANSISTOR 2SA1383
Q414	8-729-127-53	TRANSISTOR 2SC2275
Q415	8-729-190-53	TRANSISTOR 2SA985A-P
Q416	8-729-303-88	TRANSISTOR 2SC3856
Q417	8-729-303-88	TRANSISTOR 2SC3856
Q418	8-729-303-85	TRANSISTOR 2SA1492
Q419	8-729-303-85	TRANSISTOR 2SA1492
Q420	8-729-108-14	TRANSISTOR 2SA988F
Q451	8-729-203-21	TRANSISTOR 2SK389-GR
Q452	8-729-108-05	TRANSISTOR 2SA1841PA
Q453	8-729-108-05	TRANSISTOR 2SA1841PA
Q454	8-729-699-51	TRANSISTOR 2SA995F
Q455	8-729-802-71	TRANSISTOR 2SA1407-D
Q456	8-729-104-91	TRANSISTOR 2SA1383
Q457	8-729-201-56	TRANSISTOR 2SK246GR2
Q458	8-729-104-18	TRANSISTOR 2SC3514-Q
Q459	8-729-104-18	TRANSISTOR 2SC3514-Q
Q460	8-729-173-13	TRANSISTOR 2SB731
Q461	8-729-203-45	TRANSISTOR 2SC3423
Q462	8-729-104-18	TRANSISTOR 2SC3514-Q
Q463	8-729-104-91	TRANSISTOR 2SA1383
Q464	8-729-127-53	TRANSISTOR 2SC2275
Q465	8-729-190-53	TRANSISTOR 2SA985A-P
Q466	8-729-303-88	TRANSISTOR 2SC3856
Q467	8-729-303-88	TRANSISTOR 2SC3856
Q468	8-729-303-85	TRANSISTOR 2SA1492
Q469	8-729-303-85	TRANSISTOR 2SA1492
Q470	8-729-108-14	TRANSISTOR 2SA988F
Q601	8-729-119-76	TRANSISTOR 2SA1175HFE
Q602	8-729-119-76	TRANSISTOR 2SA1175HFE
Q603	8-729-177-42	TRANSISTOR 2SD774-3
Q604	8-729-194-57	TRANSISTOR 2SC945-P
R101	1-246-545-00	CARBON 1M 5% 1/4W
R102	1-246-545-00	CARBON 1M 5% 1/4W
R103	1-246-545-00	CARBON 1M 5% 1/4W
R104	1-246-545-00	CARBON 1M 5% 1/4W
R105	1-246-545-00	CARBON 1M 5% 1/4W
R106	1-246-545-00	CARBON 1M 5% 1/4W
R107	1-247-713-11	CARBON 1K 5% 1/4W
R108	1-247-713-11	CARBON 1K 5% 1/4W
R109	1-247-713-11	CARBON 1K 5% 1/4W
R110	1-247-713-11	CARBON 1K 5% 1/4W
R111	1-246-545-00	CARBON 1M 5% 1/4W
R112	1-247-713-11	CARBON 1K 5% 1/4W
R113	1-247-713-11	CARBON 1K 5% 1/4W
R151	1-246-545-00	CARBON 1M 5% 1/4W
R152	1-246-545-00	CARBON 1M 5% 1/4W

Note: The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.



Ref.No.	Part No.	Description			
R153	1-246-545-00	CARBON	1M	5%	1/4W
R154	1-246-545-00	CARBON	1M	5%	1/4W
R155	1-246-545-00	CARBON	1M	5%	1/4W
R156	1-246-545-00	CARBON	1M	5%	1/4W
R157	1-247-713-11	CARBON	1K	5%	1/4W
R158	1-247-713-11	CARBON	1K	5%	1/4W
R159	1-247-713-11	CARBON	1K	5%	1/4W
R160	1-247-713-11	CARBON	1K	5%	1/4W
R161	1-246-545-00	CARBON	1M	5%	1/4W
R162	1-247-713-11	CARBON	1K	5%	1/4W
R163	1-247-713-11	CARBON	1K	5%	1/4W
R201	1-249-465-11	CARBON	47K	5%	1/4W
R202	1-247-706-11	CARBON	330	5%	1/4W
R203	1-247-700-11	CARBON	100	5%	1/4W
R204	1-249-516-11	CARBON	33	5%	1/4W
R205	1-247-128-00	CARBON	750	5%	1/4W
R206	1-247-128-00	CARBON	750	5%	1/4W
R207	1-249-512-11	CARBON	22	5%	1/4W
R208	1-247-708-11	CARBON	470	5%	1/4W
R209	1-249-518-11	CARBON	39	5%	1/4W
R210	1-247-704-11	CARBON	220	5%	1/4W
R211	1-247-721-11	CARBON	4.7K	5%	1/4W
R212	1-214-937-00	CARBON	1M	5%	1/2W
R213	1-249-844-11	CARBON	56K	1%	1/2W
R215	1-249-818-11	CARBON	4.7K	1%	1/2W
R217	1-259-501-11	CARBON	6.8	5%	1/2W
R218	1-247-739-11	CARBON	100	5%	1/2W
R219	1-247-704-11	CARBON	220	5%	1/4W
R220	1-247-725-11	CARBON	10K	5%	1/4W
R221	1-247-704-11	CARBON	220	5%	1/4W
R222	1-247-717-11	CARBON	2.2K	5%	1/4W
R223	1-247-723-11	CARBON	6.8K	5%	1/4W
R224	△ 1-213-086-00	FUSIBLE	120	5%	1W F
R225	1-247-138-00	CARBON	2K	5%	1/4W
R251	1-249-465-11	CARBON	47K	5%	1/4W
R252	1-247-706-11	CARBON	330	5%	1/4W
R253	1-247-700-11	CARBON	100	5%	1/4W
R254	1-249-516-11	CARBON	33	5%	1/4W
R255	1-247-128-00	CARBON	750	5%	1/4W
R256	1-247-128-00	CARBON	750	5%	1/4W
R257	1-249-512-11	CARBON	22	5%	1/4W
R258	1-247-708-11	CARBON	470	5%	1/4W
R259	1-249-518-11	CARBON	39	5%	1/4W
R260	1-247-704-11	CARBON	220	5%	1/4W
R261	1-247-721-11	CARBON	4.7K	5%	1/4W
R262	1-214-937-00	CARBON	1M	5%	1/2W
R263	1-249-844-11	CARBON	56K	1%	1/2W
R265	1-249-818-11	CARBON	4.7K	1%	1/2W
R267	1-259-501-11	CARBON	6.8	5%	1/2W
R268	1-247-739-11	CARBON	100	5%	1/2W
R269	1-247-704-11	CARBON	220	5%	1/4W
R270	1-247-725-11	CARBON	10K	5%	1/4W
R271	1-247-704-11	CARBON	220	5%	1/4W
R272	1-247-717-11	CARBON	2.2K	5%	1/4W
R273	1-249-577-11	CARBON	11K	5%	1/4W
R274	△ 1-213-086-00	FUSIBLE	120	5%	1W F
R302	1-249-465-11	CARBON	47K	5%	1/4W

Ref.No.	Part No.	Description			
R303	1-247-722-11	CARBON	5.6K	5%	1/4W
R304	1-247-722-11	CARBON	5.6K	5%	1/4W
R305	1-247-717-11	CARBON	2.2K	5%	1/4W
R306	1-249-591-11	CARBON	43K	5%	1/4W
R307	1-247-152-00	CARBON	7.5K	5%	1/4W
R308	1-249-465-11	CARBON	47K	5%	1/4W
R309	1-249-465-11	CARBON	47K	5%	1/4W
R310	1-259-502-11	CARBON	4.7M	5%	1/4W
R311	1-259-502-11	CARBON	4.7M	5%	1/4W
R312	1-259-502-11	CARBON	4.7M	5%	1/4W
R313	1-259-502-11	CARBON	4.7M	5%	1/4W
R314	1-259-502-11	CARBON	4.7M	5%	1/4W
R315	1-259-502-11	CARBON	4.7M	5%	1/4W
R316	1-249-590-11	CARBON	39K	5%	1/4W
R317	1-249-469-11	CARBON	100K	5%	1/4W
R318	1-259-502-11	CARBON	4.7M	5%	1/4W
R319	1-259-502-11	CARBON	4.7M	5%	1/4W
R352	1-249-465-11	CARBON	47K	5%	1/4W
R353	1-247-722-11	CARBON	5.6K	5%	1/4W
R354	1-247-722-11	CARBON	5.6K	5%	1/4W
R355	1-247-717-11	CARBON	2.2K	5%	1/4W
R356	1-249-591-11	CARBON	43K	5%	1/4W
R357	1-247-152-00	CARBON	7.5K	5%	1/4W
R358	1-249-465-11	CARBON	47K	5%	1/4W
R359	1-249-465-11	CARBON	47K	5%	1/4W
R360	1-259-502-11	CARBON	4.7M	5%	1/4W
R361	1-259-502-11	CARBON	4.7M	5%	1/4W
R362	1-259-502-11	CARBON	4.7M	5%	1/4W
R363	1-259-502-11	CARBON	4.7M	5%	1/4W
R364	1-259-502-11	CARBON	4.7M	5%	1/4W
R365	1-259-502-11	CARBON	4.7M	5%	1/4W
R366	1-249-590-11	CARBON	39K	5%	1/4W
R367	1-249-469-11	CARBON	100K	5%	1/4W
R368	1-259-502-11	CARBON	4.7M	5%	1/4W
R369	1-259-502-11	CARBON	4.7M	5%	1/4W
R401	1-259-503-11	CARBON	4.7M	5%	1/2W
R402	1-249-673-11	CARBON	1K	5%	1/2W
R403	1-249-512-11	CARBON	22	5%	1/4W
R404	1-249-512-11	CARBON	22	5%	1/4W
R405	1-247-717-11	CARBON	2.2K	5%	1/4W
R406	1-247-704-11	CARBON	220	5%	1/4W
R408	1-247-703-11	CARBON	180	5%	1/4W
R409	1-247-704-11	CARBON	220	5%	1/4W
R410	1-246-545-00	CARBON	1M	5%	1/4W
R412	△ 1-219-010-11	FUSIBLE	33	5%	1/2W
R413	1-249-490-11	CARBON	27K	5%	1/2W
R414	1-247-704-11	CARBON	220	5%	1/4W
R415	1-246-531-00	CARBON	270K	5%	1/4W
R416	1-247-740-11	CARBON	120	5%	1/2W
R417	1-249-486-11	CARBON	12K	5%	1/2W
R418	1-247-764-11	CARBON	10K	5%	1/2W
R419	1-259-503-11	CARBON	4.7M	5%	1/2W
R420	1-249-556-11	CARBON	1.5K	5%	1/4W
R421	1-247-721-11	CARBON	4.7K	5%	1/4W
R422	△ 1-219-022-11	FUSIBLE	100	5%	1/2W
R423	1-247-717-11	CARBON	2.2K	5%	1/4W
R424	1-247-718-11	CARBON	2.7K	5%	1/4W

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description				
R425	1-247-712-11	CARBON	820	5%	1/4W	
R426	△.1-219-038-11	FUSIBLE	470	5%	1/2W	
R427	△.1-217-995-11	FUSIBLE	8.2	5%	1/2W	
R428	△.1-217-995-11	FUSIBLE	8.2	5%	1/2W	
R429	△.1-219-022-11	FUSIBLE	100	5%	1/2W	
R430	△.1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R431	△.1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R432	△.1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R433	△.1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R434	△.1-217-151-00	RES, METAL PLATE 0.22				
R435	△.1-217-151-00	RES, METAL PLATE 0.22				
R436	△.1-217-151-00	RES, METAL PLATE 0.22				
R437	△.1-217-151-00	RES, METAL PLATE 0.22				
R438	△.1-247-692-11	CARBON	22	5%	1/4W	F
R439	△.1-247-692-11	CARBON	22	5%	1/4W	F
R440	△.1-247-717-11	CARBON	2.2K	5%	1/4W	F
R441	1-249-460-11	CARBON	15K	5%	1/4W	
R442	△.1-219-002-11	FUSIBLE	15	5%	1/2W	
R443	1-247-727-11	CARBON	10	5%	1/2W	
R444	△.1-219-022-11	FUSIBLE	100	5%	1/2W	
R445	△.1-219-022-11	FUSIBLE	100	5%	1/2W	
R446	1-247-752-11	CARBON	1K	5%	1/2W	
R447	1-249-482-11	CARBON	4.7	5%	1/2W	
R448	1-249-482-11	CARBON	4.7	5%	1/2W	
R449	△.1-219-002-11	FUSIBLE	15	5%	1/2W	
R450	1-247-752-11	CARBON	1K	5%	1/2W	
R451	1-259-503-11	CARBON	4.7M	5%	1/2W	
R452	1-249-673-11	CARBON	1K	5%	1/2W	
R453	1-249-512-11	CARBON	22	5%	1/4W	
R454	1-249-512-11	CARBON	22	5%	1/4W	
R455	1-247-717-11	CARBON	2.2K	5%	1/4W	
R456	1-247-704-11	CARBON	220	5%	1/4W	
R458	1-247-703-11	CARBON	180	5%	1/4W	
R459	1-247-704-11	CARBON	220	5%	1/4W	
R460	1-246-545-00	CARBON	1M	5%	1/4W	
R462	△.1-219-010-11	FUSIBLE	33	5%	1/2W	
R463	1-249-490-11	CARBON	27K	5%	1/2W	
R464	1-247-704-11	CARBON	220	5%	1/4W	
R465	1-246-531-00	CARBON	270K	5%	1/4W	
R466	1-247-740-11	CARBON	120	5%	1/2W	
R467	1-249-486-11	CARBON	12K	5%	1/2W	
R468	1-247-764-11	CARBON	10K	5%	1/2W	
R469	1-259-503-11	CARBON	4.7M	5%	1/2W	
R470	1-249-556-11	CARBON	1.5K	5%	1/4W	
R471	1-247-721-11	CARBON	4.7K	5%	1/4W	
R472	△.1-219-022-11	FUSIBLE	100	5%	1/2W	
R473	1-247-717-11	CARBON	2.2K	5%	1/4W	
R474	1-247-718-11	CARBON	2.7K	5%	1/4W	
R475	1-247-712-11	CARBON	820	5%	1/4W	
R476	△.1-219-038-11	FUSIBLE	470	5%	1/2W	
R477	△.1-217-995-11	FUSIBLE	8.2	5%	1/2W	
R478	△.1-217-995-11	FUSIBLE	8.2	5%	1/2W	
R479	△.1-219-022-11	FUSIBLE	100	5%	1/2W	
R480	△.1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R481	△.1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R482	△.1-217-989-11	FUSIBLE	4.7	5%	1/2W	
R483	△.1-217-989-11	FUSIBLE	4.7	5%	1/2W	



Ref.No.	Part No.	Description				
R484	△.1-217-151-00	RES, METAL PLATE 0.22				
R485	△.1-217-151-00	RES, METAL PLATE 0.22				
R486	△.1-217-151-00	RES, METAL PLATE 0.22				
R487	△.1-217-151-00	RES, METAL PLATE 0.22				
R488	△.1-247-692-11	CARBON	22	5%	1/4W	F
R489	△.1-247-692-11	CARBON	22	5%	1/4W	F
R490	△.1-247-717-11	CARBON	2.2K	5%	1/4W	F
R491	1-249-460-11	CARBON	15K	5%	1/4W	
R492	△.1-219-002-11	FUSIBLE	15	5%	1/2W	
R493	1-247-727-11	CARBON	10	5%	1/2W	
R494	△.1-219-022-11	FUSIBLE	100	5%	1/2W	
R495	△.1-219-022-11	FUSIBLE	100	5%	1/2W	
R496	1-247-752-11	CARBON	1K	5%	1/2W	
R497	1-249-482-11	CARBON	4.7	5%	1/2W	
R498	1-249-482-11	CARBON	4.7	5%	1/2W	
R499	△.1-219-002-11	FUSIBLE	15	5%	1/2W	
R500	1-247-752-11	CARBON	1K	5%	1/2W	
R501	1-249-469-11	CARBON	100K	5%	1/4W	
R502	1-249-469-11	CARBON	100K	5%	1/4W	
R551	1-249-469-11	CARBON	100K	5%	1/4W	
R552	1-249-469-11	CARBON	100K	5%	1/4W	
R601	1-247-891-00	CARBON	330K	5%	1/4W	
R602	1-247-887-00	CARBON	220K	5%	1/4W	
R603	1-247-725-11	CARBON	10K	5%	1/4W	
R604	1-249-461-11	CARBON	18K	5%	1/4W	
R605	1-249-606-11	CARBON	180K	5%	1/4W	
R606	1-247-725-11	CARBON	10K	5%	1/4W	
R607	1-247-717-11	CARBON	2.2K	5%	1/4W	
R608	1-249-465-11	CARBON	47K	5%	1/4W	
R609	1-249-465-11	CARBON	47K	5%	1/4W	
R610	1-249-462-11	CARBON	22K	5%	1/4W	
R612	1-247-717-11	CARBON	2.2K	5%	1/4W	
R613	1-247-743-11	CARBON	220	5%	1/2W	
R616	1-247-693-11	CARBON	27	5%	1/4W	
R617	△.1-249-489-11	CARBON	22K	5%	1/2W	F
R618	1-247-750-11	CARBON	680	5%	1/2W	
R619	1-247-750-11	CARBON	680	5%	1/2W	
R620	1-247-750-11	CARBON	680	5%	1/2W	
R621	1-247-749-11	CARBON	560	5%	1/2W	
R622	1-247-749-11	CARBON	560	5%	1/2W	
R623	1-247-749-11	CARBON	560	5%	1/2W	
R624	1-247-749-11	CARBON	560	5%	1/2W	
R625	1-247-749-11	CARBON	560	5%	1/2W	
R626	1-247-749-11	CARBON	560	5%	1/2W	
R627	1-247-749-11	CARBON	560	5%	1/2W	
R628	1-247-749-11	CARBON	560	5%	1/2W	
R630	1-247-727-11	CARBON	10	5%	1/2W	
R631	1-247-255-00	CARBON	4.3K	5%	1/2W	
R632	1-247-255-00	CARBON	4.3K	5%	1/2W	
R633A	1-247-721-11	CARBON	4.7K	5%	1/4W	
R633	1-247-739-11	CARBON	100	5%	1/2W	
R634	1-247-235-00	CARBON	620	5%	1/2W	
R635	1-247-235-00	CARBON	620	5%	1/2W	
R650	1-247-138-00	CARBON	2K	5%	1/4W	
R651	1-247-891-00	CARBON	330K	5%	1/4W	
R652	1-247-721-11	CARBON	4.7K	5%	1/4W	
R653	△.1-212-934-00	FUSIBLE	1	5%	1/2W	F

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description
R680	1-247-727-11	CARBON 10 5% 1/2W
R681	1-247-255-00	CARBON 4.3K 5% 1/2W
R682	1-247-255-00	CARBON 4.3K 5% 1/2W
R683	1-247-739-11	CARBON 100 5% 1/2W
R701	△.1-213-086-00	FUSIBLE 120 5% 1W F
R751	△.1-213-086-00	FUSIBLE 120 5% 1W F
RT401	1-237-873-11	RES, ADJ, CARBON 100
RT402	1-237-455-11	RES, ADJ, CARBON 500
RT451	1-237-873-11	RES, ADJ, CARBON 100
RT452	1-237-455-11	RES, ADJ, CARBON 500
RV301	1-238-416-11	RES, VAR, CARBON 150K/150K (BALANCE)
RV302	1-238-418-11	RES, VAR, CAOBN 250K/250K (TREBLE)
RV303	1-238-417-11	RES, VAR, CARBON 25K/500K (BASS)
RV304	1-237-175-11	RES, VAR, CARBON 120K/120K (ATTENUATOR)
RY201	1-515-614-11	RELAY
RY601	1-515-614-11	RELAY
RY602	1-515-356-00	RELAY
RY603	1-515-356-00	RELAY
S101	1-554-879-11	SWITCH, SLIDE (INPUT SELECTOR)
S102	1-570-593-11	SWITCH, SLIDE (REMOTE TYPE) (INPUT SELECTOR)
S103	1-570-076-11	SWITCH, SLIDE (REMOTE TYPE) (REC OUT SELECTOR)
S201	1-554-019-21	SWITCH, SLIDE (REMOTE TYPE) (CARTRIDGE LOAD)
S301	1-571-773-11	SWITCH, PUSH (2 KEY)(MUTING -20dB)
S302	1-571-773-11	SWITCH, PUSH (2 KEY)(SUBSONIC)
S303	1-571-772-11	SWITCH, PUSH (3 KEY)(TONE)
S304	1-571-774-11	SWITCH, PUSH (1 KEY)(SOURCE DIRECT)
S305	1-571-772-11	SWITCH, PUSH (3 KEY)(TURNOVER)
S306	1-571-772-11	SWITCH, PUSH (3 KEY)(TURNOVER)
S501	1-571-775-11	SWITCH, ROTARY (MODE)
S601	1-571-776-11	SWITCH, ROTARY (SPEAKERS)
S801	△.1-554-538-00	SWITCH, PUSH (AC POWER)(1 KEY)
T1	△.1-449-656-11	TRANSFORMER, POWER
TM801	1-536-767-41	TERMINAL BOARD, SPEAKER (SPEAKER A)
TM802	1-536-767-41	TERMINAL BOARD, SPEAKER (SPEAKER B)

## ACCESSORY &amp; PACKING MATERIAL

3-786-728-41	MANUAL, INSTRUCTION
4-847-802-00	SCREW
4-915-880-01	SHEET, PROTECTION
*4-923-860-01	CUSHION
*4-929-261-01	INDIVIDUAL CARTON

**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.